AMENDMENTS TO THE CLAIMS

Applicants submit below a complete listing of the current claims, including marked-up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing. This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of the Claims

1.   (Currently amended) A method for transmitting digital messages on execution of an instruction sequence by a microprocessor, through output terminals of a monitoring circuit integrated on the microprocessor, at least one digital message of said digital messages being representative of characteristic data stored by the monitoring circuit on detection of a jump in the execution of an instruction sequence from an initial instruction to a destination instruction different from an instruction following the initial instruction in the instruction sequence, the method comprising steps of:

determining whether the jump is associated with a jump instruction ~~of the instruction sequence for which data representative of~~ explicitly indicating an address of a destination instruction ~~address~~ of the jump ~~is explicitly indicated in the instruction~~;

~~if yes,~~ when it is determined that that the address of the destination instruction is explicitly indicated in the jump instruction:

assigning a first value to a first set of bits of at least one digital message to provide an explicit jump message, and ~~if not,~~

transmitting the explicit jump message; and

when it is determined that the address of the destination instruction is not explicitly indicated in the jump instruction:

assigning a second value to the first set of bits of at least one digital message to provide an implicit jump message indicating an occurrence of an implicit jump[[;]]. ~~when the first set of bits is at the second value,~~

~~providing an additional~~ adding a field [[in]] to the implicit jump message, the additional field comprising a second set of bits~~, and assigning to the second set of bits a third~~

value-identifying the jump as an a type of the implicit jump from among several types of implicit

jumps, wherein the field is added only when the address of the destination instruction is not

explicitly indicated in the jump instruction.[[;]] and

transmitting the at least one digital implicit jump message.

2. (Currently amended) The method of claim 1, further comprising [[the]] a step of

assigning to a third set of bits of the at least one digital message a value corresponding to a

number of instructions executed by the microprocessor since a last executed instruction of the

instruction sequence for which a digital message associated with a jump was transmitted.

3. (Currently amended) The method of claim 1, further comprising [[the]] a step of,

if the first set of bits is at the second value, assigning to a fourth set of bits of the implicit jump

message a value representative of the address of the destination instruction.

4. (Currently amended) The method of claim 1, in which a jump wherein the type of

the implicit jump corresponds to a jump resulting from a jump instruction of the instruction

sequence containing a reference of a register in which are stored that stores data representative of

the destination instruction address.

5. (Currently amended) The method of claim 1, in which wherein a jump type

corresponds to a jump forced by the microprocessor, the destination instruction corresponding to

an instruction comprising a series of specific instructions which are different from instructions of

the instruction sequence.

6. (Currently amended) The method of claim 1, in which a jump wherein the type of

the implicit jump corresponds to a jump forced by the microprocessor, the destination instruction

being an instruction of the instruction sequence.

7. (Currently amended) A device for transmitting digital messages between a

monitoring circuit integrated on a microprocessor and an analysis tool via output terminals,

comprising:

means for detection of a jump on execution of an instruction sequence by the microprocessor;

means for storing data characteristic of the detected jump;

means for generating [[a]] at least one digital message based on the stored characteristic data, the at least one digital message comprising a first set of bits, wherein:

the first set of bits is set to a first value [[if]] when the jump is associated with a jump instruction of the instruction sequence ~~for which data representative~~ explicitly indicating an address of a destination instruction ~~address of the jump are explicitly indicated in the instruction, wherein the digital message is~~ to provide an explicit jump message, and

the first set of bits set to a second value when the jump is associated with a jump instruction of the instruction sequence not explicitly indicating the address of the destination instruction to provide ~~in the opposite case, wherein the digital message is~~ an implicit jump message indicating an occurrence of an implicit jump; and

means for transmitting the generated at least one digital message;

wherein, only when the first set of bits is set to the second value, the generation means ~~provides an additional~~ adds a field [[in]] to the implicit jump message, the ~~additional~~ field comprising a second set of bits, ~~with the second set of bits set to a third value~~ identifying a type of the [[an]] implicit jump from among several implicit jump types.

8.   (Currently amended) A method for transmitting digital messages on execution of an instruction sequence by a microprocessor, the method comprising:

detecting a jump in the execution of the instruction sequence from an initial instruction to a jump destination instruction, wherein the jump destination instruction is different from an instruction following the initial instruction in the instruction sequence;

generating at least one digital message upon the detection of the jump, wherein

[[if]] only when the jump is implicit, generating the at least one digital message as an implicit jump message indicating an occurrence of an implicit jump and ~~providing~~ adding an additional field [[in]] to the implicit jump message, wherein the additional field includes a value identifying a type of the implicit jump, and

[[if]] when the jump is not implicit, generating the at least one digital message as an explicit jump message; and

transmitting the at least one digital message.

9.   (Currently amended) The method of claim 8, wherein:

detecting the jump further comprising: comprises determining whether the jump is associated with a jump instruction of the instruction sequence explicitly indicating an address of [[the]] a jump destination instruction of the jump instruction; and

generating at least one digital message upon the detection of the jump comprises:

[[if]] when it is determined that the jump instruction explicitly indicates the address of the jump destination instruction, assigning a first value to a first set of bits of the at least one digital message to provide the explicit jump message; and

[[if]] when it is determined that the jump instruction does not explicitly indicate the address of the jump destination instruction:

assigning a second value to the first set of bits of the at least one digital message to provide the implicit jump message; and

assigning to the additional field of the implicit jump message comprising a second set of bits a third value identifying a type of the implicit jump.

10.   (Previously Presented) The method of claim 8, wherein the at least one digital message is transmitted through output terminals of a monitoring circuit integrated on the microprocessor.

11.   (Currently amended) A device for transmitting digital messages to monitor operation of a microprocessor, the device comprising:

a monitoring circuit integrated on a microprocessor for:

detecting, on execution of an instruction sequence by the microprocessor, a jump from an initial instruction to a jump destination instruction, wherein the jump destination instruction is different from an instruction following the initial instruction in the instruction sequence;

[[if]] only when the jump is implicit, providing an additional adding a field [[in]] to at least one digital message to provide the at least one digital message as an implicit jump message transmitted on the execution of the instruction sequence by the microprocessor and

indicating an occurrence of an implicit jump, wherein the ~~additional~~ field includes a value identifying a type of the implicit jump; and

[[if]] when the jump is not implicit, providing the at least one digital message as an explicit jump message;

an analysis tool to reconstitute the instruction sequence based on the at least one digital message; and

at least one monitoring terminal to provide the at least one digital message from the monitoring circuit to the analysis tool.

12.   (New) The method of claim 1, wherein a modification of the at least one digital message to indicate the type of the implicit jump is reduced by adding the field only when the at least one digital message is provided as the implicit jump message.

13.   (New) The device of claim 7, wherein a modification of the at least one digital message to indicate the type of the implicit jump is reduced by adding the field only when the at least one digital message is provided as the implicit jump message.

14.   (New) The method of claim 8, wherein a modification of the at least one digital message to indicate the type of the implicit jump is reduced by adding the additional field only when the at least one digital message is provided as the implicit jump message.

15.   (New) The device of claim 11, wherein a modification of the at least one digital message to indicate the type of the implicit jump is reduced by adding the field only when the at least one digital message is provided as the implicit jump message.